



**FW: Response to EPA Information Request : Gasco Field Test of Variable Frequency Drive Well Pumps**

**John Edwards** to: Sean Sheldrake, Dana Bayuk

02/01/2011 04:35 PM

PetersonLE, "Wyatt, Robert", "Patty Dost", "T McCue", "Ryan Barth",  
Cc: "Michael Riley", MDCrystal, "Ben Hung", "Gladstone, Alan", "James Peale", "John Edwards", "Carl Stivers"

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3 attachments



Table-wells selected for VFD testing .xls   Fig 2-2a.pdf   Fig 2-2b.pdf

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Hello Sean. This message responds to your January 26, 2010 e-mail requesting further information on the January 24 memo Gasco Field Test of Variable Frequency Drive Well Pumps. Following are the responses to your request for more information.

1. A table is attached to this message that lists the wells that will be involved in the Variable Frequency Drive Testing.

2. The Programmable Logic Control (PLC) system will be programmed to monitor the groundwater level elevations in the four monitoring wells listed in column 1 in the attached table. Monitoring wells MW-21 and 22 are located along the shoreline midway between extraction wells PW-7, PW-8, and PW-9. Wells MW-23 and MW-24 are located at each end of the well array. The locations of these wells are shown on the attached two maps, Figures 2-2a and 2-2b. The water level transducers in those four wells, plus the Willamette River transducer will transmit water level data to the PLC system. The PLC will be programmed to calculate the difference in groundwater elevation between the four monitoring wells and river. The PLC will direct the variable frequency drives (VFD) to slow down or speed up the well pumps in PW-7, PW-8, and PW-9 so that the elevation of the groundwater in each well is maintained below the elevation of the river. Initially we will conduct very short term tests to determine if the PLC is communicating properly with the VFD's. We anticipate that some programming adjustments may be necessary during this tune up period. We will also be testing the response time for the VFD's to respond to groundwater and river elevation changes. We will likely try different settings on the transducers and the PLC to test the response timing. Most of these tests will likely be less than 24 hours in length, and only the wells in column 1 of the attached table will be monitored during those tests. Once we have the PLC and VFD system performing adequately we will schedule at least one longer term test to see how the system performs over more than one tidal cycle. The longer term test(s) will likely be conducted over at least 24 hours, but may extend for several days. For the test(s) longer than 24 hours the wells in column 2 of the attached table will be monitored. We cannot determine how many short or long term tests will be needed at this time. Depending upon the test results we may elect to include additional wells in the monitoring program, but we will not remove any wells from the monitoring program without submitting a field change request to EPA.

3. We will be doing manual water level monitoring in all of the wells when we install the transducers. This is necessary to establish the groundwater depth at the time of installation. For the same reason we will also manually measure groundwater depths when the transducers are

removed.

4. The transducers automatically record water level and water temperature. The transducers will be set to record at one minute intervals for the short term tests. For the long term tests our preliminary plan is to continue with one minute intervals, but we may convert to 15 minute intervals, depending upon the length of the tests. Each of the well pumps has a continuously recording flow meter and that flow data will be maintained for each well.

5. As previously described in the above responses, there will be short and long term tests. The number and length of the tests will depend upon whether the PLC system needs programming adjustments more than once and how well the system performs on a long term test. We will be testing the system performance over multiple tidal cycles.

I hope this provides the information you need. Please let me know if you need further information or clarifications.

Thanks

John

John E. Edwards, RG, CEG

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-----Original Message-----

From: Sheldrake.Sean@epamail.epa.gov  
[mailto:Sheldrake.Sean@epamail.epa.gov]  
Sent: Wednesday, January 26, 2011 10:26 AM  
To: John Edwards

Cc: Gladstone, Alan; Dana Bayuk; Ben Hung; Carl Stivers; John Edwards;  
James Peale; Mike Crystal; Michael Riley; Patty Dost;  
PetersonLE@cdm.com; Ryan Barth; Bob Wyatt; T McCue  
Subject: Re: Gasco Field Test of Variable Frequency Drive Well Pumps

Bob, John,

EPA has reviewed the January 24, 2011 proposal to test the variable frequency drive pumps at Gasco. A few more details would be helpful in preparation for our field oversight. Please elaborate on the following:

- \* The list of wells (pumping and monitoring) that have been selected for the VFD field testing.
- \* A general description of the PCL programming.
- \* Describe any manual water level monitoring that will be performed.
- \* Data to be recorded (levels, flow rates) and over what intervals.
- \* The length of the proposed pump testing as well as any deciding factors associated with the test length, such as testing VFD performance over a series of tidal influences.

Thank you.

S

Sean Sheldrake, RPM, Unit Diving Officer USEPA, Region 10 Environmental Cleanup Office 1200 Sixth Avenue, Suite 900, ECL-110 Seattle WA 98101-3140 sheldrake.sean@epa.gov  
Phone: 206/553-1220  
Region 10 Dive Team:  
<http://yosemite.epa.gov/r10/oea.nsf/webpage/dive+team>  
Portland Harbor Cleanup:  
<http://yosemite.epa.gov/r10/cleanup.nsf/sites/ptldharbor>  
Green Cleanups:  
<http://yosemite.epa.gov/R10/extaff.nsf/programs/greencleanups>  
Green Cleanups (EPA only):  
<http://204.47.216.153:9876/r10/infopage/cleanup.nsf/webpage/greener+cleanups>  
Deliveries: Parking Garage mailroom (1st floor)  
Visitors: Check-in @ PERC / Service Center on 12th floor:  
<http://yosemite.epa.gov/r10/extaff.nsf/PERC/Visiting+Seattle>

From: Sean Sheldrake/R10/USEPA/US  
To: "John Edwards" <jedwards@anchoragea.com>  
Cc: "Gladstone, Alan" <AGLADSTONE@davisrothwell.com>, "Dana Bayuk" <BAYUK.Dana@deq.state.or.us>, "Ben Hung" <bhung@anchoragea.com>, "Carl Stivers" <cstivers@anchoragea.com>, "John Edwards" <jedwards@anchorenv.com>, "James Peale" <jpeale@maulfoster.com>, "Mike Crystal" <MDCrystal@aol.com>, "Michael Riley" <mriley@anchoragea.com>, "Patty Dost" <pdost@pearllegalgroup.com>, PetersonLE@cdm.com, "Ryan Barth" <rbarth@anchoragea.com>, "Wyatt, Robert" <rjw@nwnatural.com>, "T McCue" <tom.mccue@wacker.com>  
Date: 01/26/2011 09:53 AM

Subject: Re: Gasco Field Test of Variable Frequency Drive Well Pumps

Bob, John,

The January 20, 2011 summary memorandum suggests that a complete analysis of the Gasco Capture Zone Field Test Plan data will not be available for EPA review prior to the draft EE/CA. EPA requires the complete analysis in a timelier manner in order to evaluate the conclusion made in the memorandum that the groundwater elevation was maintained below the river elevation in the offshore piezometers. EPA requests that the complete analysis of the test plan data be provided for review by February 28, 2011.

Thank you.

S

Sean Sheldrake, RPM, Unit Diving Officer USEPA, Region 10 Environmental Cleanup Office 1200 Sixth Avenue, Suite 900, ECL-110 Seattle WA 98101-3140 sheldrake.sean@epa.gov  
Phone: 206/553-1220  
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Portland Harbor Cleanup:  
<http://yosemite.epa.gov/r10/cleanup.nsf/sites/ptldharbor>  
Green Cleanups:  
<http://yosemite.epa.gov/R10/extaff.nsf/programs/greencleanups>  
Green Cleanups (EPA only):  
<http://204.47.216.153:9876/r10/infopage/cleanup.nsf/webpage/greener+cleanups>  
Deliveries: Parking Garage mailroom (1st floor)  
Visitors: Check-in @ PERC / Service Center on 12th floor:  
<http://yosemite.epa.gov/r10/extaff.nsf/PERC/Visiting+Seattle>

From: "John Edwards" <jedwards@anchoragea.com>  
To: Sean Sheldrake/R10/USEPA/US@EPA, "Dana Bayuk" <BAYUK.Dana@deq.state.or.us>  
Cc: "Wyatt, Robert" <rjw@nwnatural.com>, "Patty Dost" <pdost@pearllegalgroup.com>, <PetersonLE@cdm.com>, "Carl Stivers" <cstivers@anchoragea.com>, "Ryan Barth" <rbarth@anchoragea.com>, "Michael Riley" <mriley@anchoragea.com>, "Ben Hung" <bhung@anchoragea.com>, "Mike Crystal" <MDCrystal@aol.com>, "T McCue" <tom.mccue@wacker.com>, "James Peale" <jpeale@maulfoster.com>, "Gladstone, Alan" <AGLADSTONE@davisrothwell.com>, "John Edwards" <(jedwards@anchorenv.com)> <jedwards@anchoragea.com>  
Date: 01/24/2011 03:08 PM  
Subject: Gasco Field Test of Variable Frequency Drive Well Pumps

Hello Sean and Dana. Attached is a memo informing you of our plan to do some field testing of the pilot well variable frequency drive programmable logic control interface at the Gasco site. Please let me

know if you have any questions or comments.

Thanks

John

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